



# Content Analysis of Feedback Journals for New Nurses From Preceptor Nurses Using Text Network Analysis

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This study aimed to identify keywords, core topic areas, and subthemes by analyzing feedback journals written by preceptor nurses to new nurses during the preceptorship period and to derive implications through word clustering. A total of 143 preceptor nurses' feedback journals for new nurses from March 2020 to January 2021 were converted into a database using Microsoft Office Excel. Text network analysis was performed using the NetMiner 4.4.3 program. After data preprocessing, simple frequency, degree centrality, closeness centrality, betweenness centrality, and community modularity were analyzed. In the feedback journals, the most central words were "study," "medication," "practice," "nursing," "method," "need," and "effort," whereas frustration, "new nurses" had low centrality. Five subthemes were derived: (1) learning necessity to strengthen new nurses' competency, (2) independence of new nurses, (3) emphasis on accuracy in nursing skills, (4) difficulties in understanding the nursing tasks expected of new nurses, and (5) basic competency of new nurses. The results of this study highlighted the experiences of new nurses and allowed for an assessment of journal feedback content provided by preceptor nurses. As such, the study provides basic data to develop a standardized education and competency empowerment program for preceptor nurses.

**KEY WORDS:** Data mining, Feedback, Nurse, Preceptorship

The preceptorship program is a support strategy for newly graduating nurses that helps them gain expertise, skills, and confidence in rapidly changing clinical environments.<sup>1</sup> This study sought to uncover insights about how to improve preceptor programs in nursing. Preceptorship is

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the most useful way to minimize the gap between theory and practice and improve the practical skills of new nurses.<sup>2</sup> "Preceptor nurses" are clinically experienced nurses who help new nurses adapt to the field practice by guiding them through physical environments, ward routines, and workplace norms and values.<sup>3</sup> Accordingly, preceptor nurses serve as teachers and mentors for new nurses during their preceptorship programs. Notably, successful preceptor nurses often demonstrate a strong motivation and passion to improve the quality of education.<sup>4</sup>

Effective preceptorship may provide psychological stability to new nurses, improve job satisfaction, and foster organizational socialization.<sup>5</sup> Although studies have found that preceptorship may improve a new nurse's overall competence, critical thinking, and problem-solving skills, the preceptor's provision of appropriate feedback and emotional support have an impact on professional socialization, job satisfaction, and retention.<sup>6</sup> A recent study found that effective preceptorship in the clinical field requires appropriate teaching methods, communication skills, emotional support, and timely feedback that helps new nurses understand their strengths, weaknesses, and areas for improvement.<sup>7</sup> Helpful to note is that new nurses who are satisfied with their relationships with their preceptor nurses demonstrate a low turnover intention.<sup>8</sup> However, it has been reported that preceptor nurses need to improve their communication skills to resolve difficulties more effectively with new nurses.<sup>9</sup> Therefore, in order to increase the positive effect of the preceptorship program—especially in terms of its impact on new nurse turnover intention—it is necessary to educate preceptors to develop excellent competencies with which they may foster satisfying relationships with new nurses, which may encourage new nurses to stay in their positions.<sup>8,10</sup> In addition, the role of preceptor nurses is very important because they may affect not only the socialization process of new nurses but also their professionalism and sense of duty.<sup>11</sup>

Preceptor nurses must balance training new nurses with their primary responsibility of providing care to patients, while also managing the additional burdens and stress that come with being responsible for the new nurse's work duties and being acutely aware of their own roles.<sup>11</sup> This work burden has a negative effect on their relationships with new nurses<sup>7</sup>; as a result, new nurses may not receive adequate support from their preceptors, which may increase their

turnover.<sup>8</sup> In fact, preceptor feedback in the clinical field provides new nurses with opportunities for self-reflection and helps them learn more effectively.<sup>12</sup> Although receiving appropriate feedback on their strengths and weaknesses may help new nurses better adapt to their clinical environments,<sup>13</sup> studies have found that new nurses do not often receive such feedback.<sup>14</sup> Furthermore, for preceptor nurses to perform their roles optimally, it is necessary for them to recognize new nurses as adult learners, provide regular evaluations and feedback, and increase their level of empathy and consideration.<sup>13,15,16</sup> Preceptor nurses may contribute to new nurses' positive learning experiences and growth by sharing their experiences with new nurses in addition to them giving formal direction and constructive feedback.<sup>12</sup>

Although several studies have been conducted on role recognition,<sup>11</sup> job stress and workload,<sup>17</sup> and educational behavior evaluation among preceptor nurses,<sup>7</sup> as well as on preceptorship programs,<sup>2,3</sup> no studies have been done on the feedback that preceptor nurses give to new nurses. In response to this gap, this study conducted a text network analysis to determine what kind of feedback preceptor nurses gave new nurses during the preceptorship period. Text network analysis is a quantitative research approach that involves conducting a measurable content analysis on collected text.<sup>18,19</sup> In particular, text network analysis situates the relationship between keywords in the collected text as particularly relevant.<sup>19</sup> Notably, text network analysis is a convenient way to analyze and predict large-scale data and has the advantage of being more objective by preventing researcher bias from affecting the results, which is a limitation of existing qualitative and quantitative analysis methods.<sup>20</sup> Recently, studies in the field of nursing have used text network analysis to identify knowledge structures on specific research topics.<sup>21-23</sup> The method makes it possible to identify core topics and their relationships with subtopics around extended areas of the main topic and to visualize research results as comprehensive and intuitive sociograms, which enables the exploration of knowledge structures.<sup>18</sup> Regarding its methodological value, text network analysis produces the evidence necessary for the formation of the intellectual body of nursing studies and for identifying certain patterns from the scattered data.<sup>18</sup>

In this study, we conducted a text network analysis on weekly feedback journals written for new nurses by preceptor nurses during the preceptorship period. We identified central keywords and core topic areas according to the frequency of their occurrence in the journals and clustered the relationships formed between the keywords to identify subthemes. Ultimately, our findings may serve as basic data for developing programs designed to enhance existing preceptor teaching methods and competencies. This study had two main objectives:

1. Identify core keywords from feedback journals by extracting keywords according to their frequency of appearance.

2. Identify core topics and subtheme groups from the extracted text.

## METHODS

### Research Design

We used a quantitative content analysis research design. Specifically, as noted previously, we conducted a text network analysis to analyze the contents of feedback journals, written by preceptor nurses for new nurses during their preceptorships, by extracting core keywords from the journals.

### Participants and Data Collection

This study analyzed 143 feedback journals of preceptor nurses, prepared between March 2020 and January 2021, at C University Hospital in G Metropolitan City in Korea. A feedback journal is a type of diary in which the preceptor writes and organizes the advice given to the new nurse during the preceptorship period. The feedback journal contents were organized so that the preceptor could freely write feedback on what new nurses did well and what was lacking or needed improvement. Feedback for each nurse was recorded six times. Consent was obtained from the preceptor nurses to participate in the study after explaining that they would receive 30 minutes of training on how to write feedback journals for new nurses before the start of the preceptorship and that the journals would be used as basic data for developing a preceptor course. During this study period, a total of 171 new nurses joined C University Hospital. A total of 144 preceptors agreed to participate in the study; 27 of these preceptors were in charge of two new nurses each because of their departments being understaffed. During the preceptorship, 28 new nurses resigned, and 12 preceptors dropped out of the study. The final analysis covered 143 feedback journals written by a total of 132 preceptors. On concluding the preceptorship, the preceptor nurses submitted the feedback journals to the nursing education team. For the purpose of analysis, the contents of the feedback journals were transcribed into Microsoft Office Excel (Microsoft Inc., Redmond, WA, USA) and converted into a database. At the end of the study, the feedback journals written by the preceptors were returned to the new nurses using the list managed by the nursing education team of the research hospital.

### Data Analysis

During the data analysis, the main semantic structure was visualized as a sociogram through preprocessing and network analysis. Analysis was conducted using NetMiner 4.4.3 software (Cyram Co. Ltd., Gyeonggi, South Korea).

### Preprocessing Stage

We transcribed the feedback journals written by the preceptor nurses into Microsoft Office Excel (Microsoft Inc.). A reconfirmation process was used to check for data accuracy.

NetMiner's "import unstructured text" function was used after reading the database. Only nouns were extracted from the long text using the morpheme analysis function of NetMiner 4.4.3. Words that did not have important meanings, such as pronouns, adjectives, and adverbs, were primarily removed using natural language processing.<sup>24</sup>

Through a consensus process, we created a "user dictionary" consisting of the remaining nouns, after excluding words that were deemed to not have important meanings. We divided the remaining nouns into synonyms (forming a thesaurus), defined words (compound words combined with multiple words), and excluded words. We excluded nouns that were not related to the study's objectives and that were commonly used; we measured common use based on having a Term Frequency-Inverse Document Frequency values of 0.5 or less (eg, "patient," "work," "important," "nurse," "thought," "first," and "confirmation"), as per previous studies.<sup>25</sup> In text networks, the keywords selected by us vary depending on the keyword extraction criteria, so sufficient discussion among us was necessary when selecting keywords that may adequately express the data.<sup>26</sup> We reduced any possibility of subjective bias in the process of word refinement by frequently consulting each other.

A total of 314 thesaurus words, 73 defined words, and 1268 excluded words were registered in the user dictionary, from which 377 keywords were identified from the feedback journals prepared by the preceptor nurses. Simple frequency refers to the number of appearances of words in the entire document and to the frequency of keywords used in the document. In this study, 30 words with the highest simple appearance frequency were extracted and analyzed based on the refined words.

### Network Formation

In the network formation process, a co-occurrence matrix of keywords was created to reflect that two keywords were either attached side-by-side in one sentence or located elsewhere in different sentences within the same text.<sup>21</sup> Repeated co-occurrence may suggest a semantic structure between words; that is, the higher the connectivity strength, the more the co-occurrence with other keywords, which indicates a semantic structure in various contexts. In the co-occurrence one-mode matrix of the "keyword × keyword" relationship, the connectivity strength was 1 to 32, with 74.6% (1008) of the keywords having a connectivity strength of 1 or less, 89.1% (1204) below 2, and 98.1% (1326) below 5.

To identify the principal relevant phenomena in network analysis, only keywords with an appropriate level of connectivity are included, but no reference value for the connectivity strength has been proposed<sup>26</sup>; therefore, a reference value was determined for this study to facilitate interpretation and network visualization.<sup>21</sup> In this study, a one-way mode matrix

consisting of 343 keywords with a connectivity strength of two or more was created and used for the network analysis.

### Statistical Analysis and Visualization

Statistical analysis was performed and visualized using a one-way mode matrix to identify core keywords in the feedback journals of the preceptor nurses. The centrality of the network was analyzed for degree, closeness, and betweenness centrality, and the means and concentration percentages for each of these were determined. Centrality indicators show that words with high centrality may be considered core keywords to the extent that such words in the network are centered.<sup>27</sup> Degree centrality refers to the degree to which nodes in the network co-occur with other nodes around the connectivity strength.<sup>27</sup> Closeness centrality refers to the degree to which a node is located close to another node within a network.<sup>28</sup> Betweenness centrality refers to the degree to which a node plays an intermediary role with other nodes within the network.<sup>27</sup> The 30 principal keywords with high-degree closeness and betweenness centralities were visualized as spring network maps. The larger the node size and centrality index, and the thicker the link, the higher the frequency of co-occurrence between words tends to be.

To visualize the main semantic structure, a sociogram containing the 30 principal keywords in relation to degree centrality was constructed. The inclusion of the connections between all the keywords in a sociogram reduces visibility and makes it difficult to interpret; therefore, it is preferable to determine the desired connectedness strength for visualization through iterations, taking into account the size or density of the network.<sup>26</sup> In this study, it was judged appropriate to include connections with two or more connectivity strengths.

### Subtheme Analysis

To identify relevant subthemes, the largest thematic component was first extracted through component analysis and then divided into optimal subthemes using modularity indicators. If the modularity has a negative value, it means that the community is not significantly divided, whereas a value of 0 indicates that all nodes belong to one community. A value of 0 or higher means that it is somewhat modularized.<sup>29</sup> An exploratory semantic analysis of the schematic subthemes was subsequently performed.<sup>28</sup>

### Ethical Considerations

A text network analysis should carefully address any ethical issues that may arise in research dealing with a specific group of networks.<sup>26</sup> This is because there is a risk of exposure of research participants' individual information to network data, and interests between individuals according to the analysis results may be revealed. In addition, research that depends on the interest and subjectivity of the researcher should be

avoided because the researcher may give a somewhat subjective interpretation of the research results. Therefore, in this study, in the data preprocessing phase, the research participants' individual data were deleted, and only the original texts of the feedback journals were used. The user dictionary was constructed so that individual characteristics, such as department, were not revealed. Therefore, this study was conducted with the approval of the Department of Nursing and the institutional review board (IRB no. CNUH-2022-011) of C University Hospital. Informed consent was obtained from the preceptor nurses after it was explained that personal information would not be used in relation to the feedback journal analysis.

## RESULTS

### Keywords From the Feedback Journals of Preceptor Nurses

To determine the core topic areas of the feedback journals of the preceptor nurses, the 30 principal keywords in terms of simple frequency, degree centrality, closeness centrality, and betweenness centrality indicators were identified (Table 1). Simple frequency was identified in relation to the following words, in descending order of frequency: “medication,” “nursing,” “study,” “time,” and “future.” In this study, the means of degree centrality, closeness centrality, and betweenness centrality of the word networks were 0.13, 0.36, and 0.07, respectively, and the concentrations were 15.8%, 25.9%, and 23.3%, respectively. In all centralities, the following words were the most important keywords: in degree centrality, “study,” “medication,” “practice,” “nursing,” and “method”; in closeness centrality, “study,” “medication,” “practice,” “effort,” and “nursing”; and in betweenness centrality, “medication,” “study,” “understanding,” “need,” and “practice.” In terms of the three centrality analyses, the principal seven words were “study,” “medication,” “practice,” “nursing,” “method,” “need,” and “effort.”

### Visualizing the Main Semantic Structure

A sociogram including the 30 principal keywords in the feedback journals is presented in Figure 1. The size of the node represents the degree centrality, and the thickness of the link represents the connection strength, that is, the frequency of co-occurrence. Keyword nodes in relation to “medication,” “study,” and “practice,” which were highly centralized in all subsociograms and were the largest, and the semantic structure was examined focusing on these three core topic areas. First, “medication-study,” “medication-accuracy,” and “medication-injection” formed a semantic structure due to the high frequency of co-occurrence between these keywords. Second, “study-effort,” “study-independence,” and “study-method” formed another semantic structure. Third, “practice method” and “practice need” formed a third semantic structure. “Frustration” and “new nurse” showed low centrality,

whereas “study” and “medication” had the highest centrality in terms of degree centrality, closeness centrality, and betweenness centrality.

### Subtheme Groups

As a result of the modularity analysis for cohesiveness, five subthemes were identified in terms of optimal modularity (.38) (Figure 2). Words such as “study,” “practice,” “need,” “habit,” “support,” and “new nurse” were classified as subtheme 1. Subtheme 2 consisted of words such as “independence,” “next time,” “mistake,” and “night.” Words such as “medication,” “preparation,” “method,” “accuracy,” “examine,” “injection,” and “operation” were classified as subtheme 3. Subtheme 4 consisted of words such as “IV cannulation,” “time,” “condition,” “situation,” “understanding,” and “frustration.” Words such as “nursing,” “future,” “examination,” “performance,” “appearance,” “effort,” and “base” were classified as subtheme 5. Each subtheme was generally categorized, based on the context in which the principal words for each subgroup were used. The five subthemes were categorized as (1) the need for learning to strengthen the competency of new nurses, (2) the independence of new nurses, (3) the emphasis on accuracy in skills, (4) the difficulty of grasping the work experienced by new nurses, and (5) the basic competencies of new nurses.

## DISCUSSION

This study aimed to analyze the content of feedback journals for new nurses written by preceptor nurses during the preceptorship period using text network analysis. It was found that words such as “study,” “medication,” “practice,” “nursing,” “method,” “need,” and “effort” had high centrality. Following an examination of the journal contents in terms of the principal topic areas and subthemes identified, it was shown that the preceptors emphasized the need for standardized training to become effective educators, particularly concerning the skills required to foster study in areas where nurses had insufficient knowledge, and sought to help new nurses adapt successfully. In particular, it was shown that feedback was given on how to perform nursing in an appropriate manner in relation to medication, various treatments, and preparations. This type of feedback indicates that ongoing education focused on the difficulties faced by new nurses in performing medication-related tasks while nursing patients is required to reduce the frequency of mishaps. Most new nurses primarily engaged in observation practice while they were students, which means that they are highly likely to be inexperienced in nursing patients.<sup>30</sup> Dosing errors adversely affect patient safety and are the most frequently reported type of medical accidents.<sup>31</sup> Adherence to dosing principles is an area that preceptor nurses should never overlook during training, as it may reduce dosing errors made by new

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**Table 1.** Top 30 Keywords That Emerged From Feedback Journals of the Preceptor Nurses

Rank	Keyword	Frequency	Keyword	Degree Centrality	Keyword	Closeness Centrality	Keyword	Betweenness Centrality
1	medication	185	study	0.28	study	0.48	medication	0.29
2	nursing	161	medication	0.28	medication	0.48	study	0.21
3	study	156	practice	0.24	practice	0.48	understanding	0.20
4	time	143	nursing	0.21	effort	0.43	need	0.15
5	future	128	method	0.21	nursing	0.43	practice	0.15
6	situation	121	preparation	0.21	method	0.42	condition	0.13
7	method	116	need	0.21	explanation	0.41	time	0.11
8	IV cannulation	113	effort	0.17	time	0.41	nursing	0.11
9	condition	104	time	0.17	need	0.40	effort	0.10
10	practice	102	future	0.17	preparation	0.40	method	0.07
11	explanation	99	accuracy	0.17	accuracy	0.39	situation	0.07
12	new nurse	94	explanation	0.14	future	0.39	habit	0.07
13	accuracy	92	next time	0.10	understanding	0.38	future	0.06
14	preparation	89	support	0.10	appearance	0.37	accuracy	0.06
15	mistake	89	appearance	0.10	next time	0.36	explanation	0.06
16	operation	85	operation	0.10	support	0.36	preparation	0.05
17	next time	81	mistake	0.10	injection	0.36	next time	0.05
18	injection	80	injection	0.10	base	0.35	independence	0.03
19	habit	79	understanding	0.10	operation	0.35	appearance	0.02
20	support	78	examination	0.07	independence	0.34	mistake	0.02
21	examination	78	base	0.07	mistake	0.34	operation	0.02
22	appearance	77	night	0.07	IV cannulation	0.34	base	0.01
23	understanding	73	independence	0.07	performance	0.32	IV cannulation	0.01
24	independence	73	condition	0.07	habit	0.30	performance	0.01
25	frustration	73	situation	0.07	examination	0.29	injection	0.00
26	performance	70	performance	0.07	condition	0.29	night	0.00
27	effort	70	habit	0.07	night	0.28	examination	0.00
28	need	68	IV cannulation	0.07	situation	0.23	frustration	0.00
29	night	68	frustration	0.04	new nurse	0.23	need	0.00
30	base	68	new nurse	0.04	frustration	0.19	new nurse	0.00
Average				0.13				
Centrality				15.8%				
					25.9%			

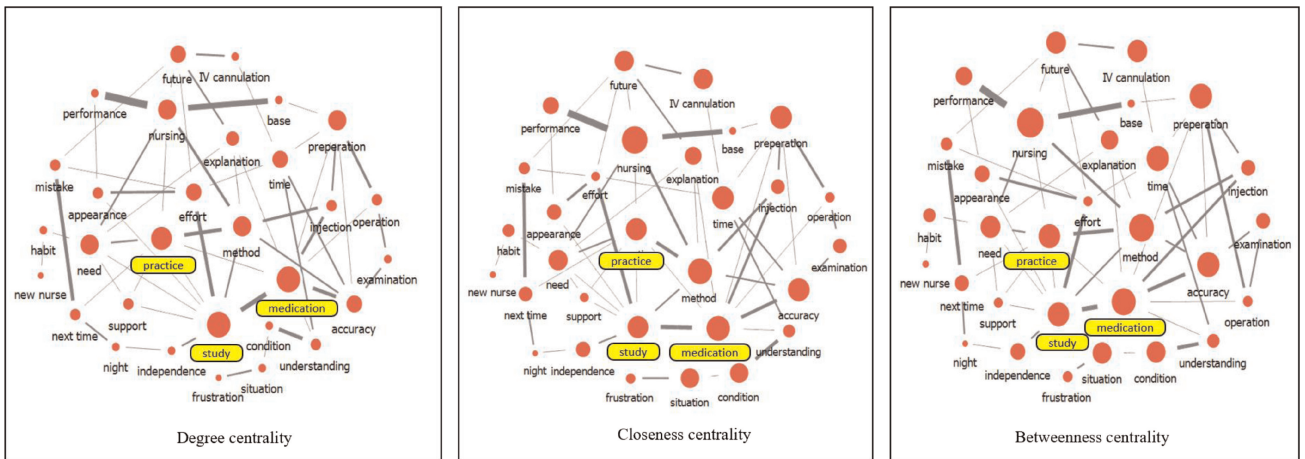
Abbreviation: IV, intravenous.

nurses.<sup>30</sup> However, teaching preceptor nurses while doing their own work is inevitably felt as a great burden and responsibility, which may reduce the quality of nursing care; therefore, a strategy to reduce the real burden is needed.<sup>17,32</sup> To address this, environments such as simulation centers in hospitals need to be provided when developing standardized preceptor training programs,<sup>11</sup> ensuring sufficient opportunities for repeated practice.<sup>33</sup>

The main semantic structure derived in this study showed the word context in relation to three core topic areas. “Medication” had a strong degree of connectedness with “study,” “accuracy,” and “investigation.” New nurses experience difficulties in performing medication-related tasks at clinical sites.<sup>34</sup> In addition, more than half (61.8%) of the medication errors have been associated with intravenous administration,

due to a lack of knowledge concerning the relevant medication, with most such errors relating to inappropriate or erroneous doses, timings, frequency, and drugs, and sometimes even the wrong patients.<sup>31</sup> It was shown that the preceptor nurses were aware of the critical need to follow the correct procedures concerning drug administration, emphasized this need, and provided feedback to encourage ongoing study in relation to medication. As dosing errors may occur depending on varying clinical experience, career paths, and department practices,<sup>31</sup> prevention and improvement strategies for safe dosing should be continuously refined.

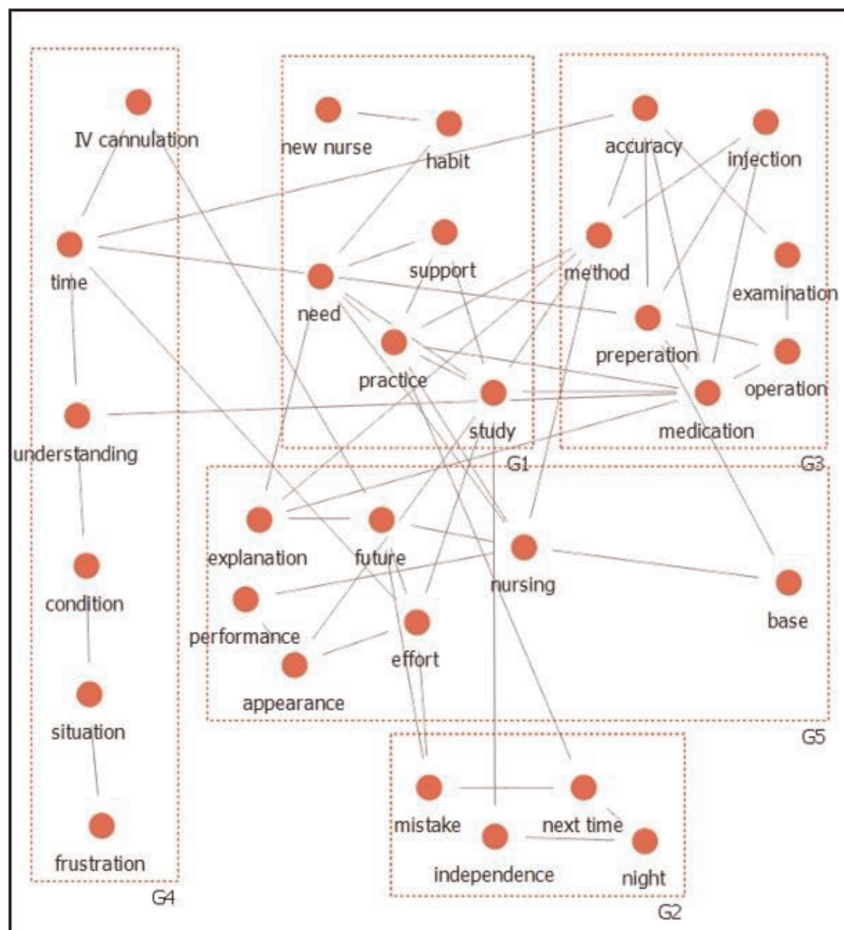
This study also identified a semantic structure in relation to “effort,” “independence,” and “method.” The results of this study showed that new nurses reported fear during periods of independent nursing and complained of difficulties



**FIGURE 1.** Keyword network analysis derived from feedback journals of the preceptor nurses.

concerning how to study, while preceptor nurses emphasized the importance of study and the need for support for new nurses. The preceptor nurses also recognized the need to strengthen their expertise and acquire knowledge in order to educate new nurses. They shared the experiences they had

when they were new in the clinical field, such as their difficulties with regard to teaching methods and their concerns about becoming independent.<sup>35</sup> New nurses have been reported to feel that they lack adequate knowledge and that more study is needed to avoid harming patients.<sup>36</sup> However, they also



**FIGURE 2.** Visualization of the subtheme analysis derived from feedback journals of the preceptor nurse.

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have varying experience in terms of content and in practical nursing skills specifically, when becoming more independent.<sup>37</sup> Preceptor nurses are expected to take charge of training new nurses and to conduct training conscientiously, but sometimes they are obliged to work through a checklist of practical training without providing a sufficiently detailed explanation. Sufficient time needs to be invested to strengthen the expertise of new nurses and enable them to become independent and take care of patients on their own. Systematic and accurate explanations and awareness of the needs of new nurses are required at the hospital level to ensure that preceptorships operate efficiently.

It was furthermore found that “practice” formed a semantic structure with “method” and “need.” Preceptor nurses sometimes have to provide explanations to new nurses because these nurses struggle to acquire relevant information and knowledge within a short time. It had been previously reported that new nurses have difficulties working in situations where they lack confidence in their skills.<sup>30</sup> The preceptor nurses were of the opinion that new nurses needed to practice virtually because they could not obtain enough field practice and that new nurses should be provided with accurate feedback to prevent them from becoming habitually error-prone. When new nurses become proficient in clinical techniques, their relationships with senior nurses may develop positively, which is an important factor in clinical field adaptation.<sup>38</sup> Practices in relation to oxygen therapy, intermittent gastrostomy, perineal care, blood transfusion, and intravenous administration, which are among the core basic nursing procedures suggested by the Korea Nursing Education and Evaluation Agency, are classified as having a medium or high degree of difficulty, for which additional support is needed as part of the curriculum. To reduce difficulties in training new nurses, lessen their burden, and enable them to adapt smoothly to practice, it is necessary to improve basic nursing competency during the preceptorship period.

Finally, five subthemes were identified. The first subtheme was “the need to learn to strengthen the competence of new nurses.” The preceptor nurses expressed a need to acquire more knowledge to provide accurate education to complement the provision of experience-based information to new nurses. These findings indicated that the preceptor nurses considered appropriate knowledge to be lacking and recognized the need for constant learning to strengthen their capabilities. The second subtheme was “independence of new nurses.” New nurses may be fearful of being independently responsible for patients.<sup>37</sup> To address such concerns, the preceptor nurses were shown to assist new nurses to perform their work independently during the preceptorship period, providing feedback on mistakes to help ensure subsequent improvement. It was apparent that the preceptors knew of the difficulties facing new nurses and sympathized with and

supported them, which was likely to help those nurses to cope better with their various challenges.<sup>36</sup> The third subtheme was “emphasizing accuracy when describing.” Learning clinical skills is important for new nurses in adapting to practice. Being able to work efficiently by acquiring relevant skills is directly related to confidence improvement and field adaptation, which may further lead to positive relationships with senior nurses.<sup>38</sup> Having basic nursing skills is essential for new nurses, but where such skills may be lacking, nurses find work in the clinical field considerably more challenging, which leads to an increase in stress and in resignation rates.<sup>39</sup> Preceptor nurses do not teach skills in a standardized way<sup>35</sup> but rather tend to apply idiosyncratic methods, making it difficult to reduce gaps between theory and practice effectively and consistently. Therefore, hospitals should provide education on standardized basic nursing skills to preceptor nurses. The fourth subtheme was found to be “difficulty in identifying work experienced by new nurses.” If new nurses lack a suitable understanding of what is required and do not have enough time to provide care, they may find it difficult to select and provide appropriate care for patients, which can lead to embarrassment and an increased role burden.<sup>40</sup> It was shown that the preceptor nurses helped improve the problem-solving abilities of the new nurses by providing feedback on how to cope with various challenging situations, such as having to identify the right veins for specific procedures. Therefore, it is necessary to develop an educational program that may present various situations to help new nurses better understand their work and to identify problem areas. The fifth subtheme was “basic competency of new nurses.” The preceptor nurses not only acted as educators but also served as mentors for new nurses. In this study, it was shown that preceptor nurses need to know what is required for effective patient nursing and that new nurses need to understand the importance of being able to work effectively alongside a patient. In addition, the preceptor nurses were prepared to praise the efforts of the new nurses while urging them to make greater efforts. Given that new nurses often face many difficulties in communication while performing various tasks and duties in hospitals, preceptor nurses must provide active emotional support to strengthen the basic competencies of new nurses.

From the results of this study, it was found that the feedback provided by the preceptor nurses to new nurses mainly focused on work. Active emotional support and mentoring provided by preceptor nurses are important because new nurses encounter numerous challenges during their early employment period, which can have varying psychological effects. Therefore, a program is needed for educating preceptor nurses to help improve the emotional support and communication skills they provide or help develop for new nurses. This study is novel in that it assessed feedback obtained from preceptor nurses in relation to new nurses using

text network analysis. However, this study was limited because the results may not be readily generalized as the analysis was only conducted on feedback journals covering 1 year of preceptorship in a general tertiary hospital. Furthermore, the results of text network analysis may be influenced by the words and expressions that are identified for use. Although we sought to mitigate this limitation by using a thesaurus and selecting what we considered to be obvious keywords, it may be that a focus on certain other words would have led to differing conclusions or emphases. Nevertheless, through this study, the experiences of new nurses could be further clarified in relation to the required support that was provided by preceptor nurses and in terms of where further support areas need to be developed.

## CONCLUSIONS

This study was conducted by applying a text network analysis to identify, group, and analyze core keywords in the feedback journals for new nurses written by preceptor nurses. We found that the feedback emphasized the need for new nurses to engage in appropriate and effective practices, to continue to study, and to make ongoing efforts to ensure good patient care. The results also suggested that the new nurses may have struggled with clinical skills and preceptor nurses may have struggled to mentor the new nurses while carrying out their own duties. Indeed, we observed that time constraints were a significant burden among preceptor nurses. To reduce new nurses' fears concerning practice and enhance their ability to adapt to the field, it is recommended that clinical educator nurses be prepared to facilitate clear communication between new nurses and preceptor nurses and research on how best to ensure standardized education. For example, education should be revised to reduce the workload of preceptor nurses. Moreover, considering that preceptor feedback remains a necessary factor in a positive relationship between a preceptor nurse and a new nurse and that empathetic and supportive preceptors are especially strong educators and mentors, education should also be revised to strengthen the interpersonal competencies of preceptor nurses (eg, empathy, giving feedback) to help them develop better relationships with new nurses.

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